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ABSTRACT

This study examines patterns of mother/child verbal interactions during task performance for differences related to the sex and locus of control (LOC) of the child. Subjects were 40 pairs of white, middle-class mothers and their children. The children--20 boys and 20 girls--were divided equally among first- and later-born 4- and 5-year olds. The children were classified as "Internals" or "Externals" on the basis of their scores on an appropriate LOC scale. The social interaction of each pair was videotaped during four tasks: two puzzle tasks and two sex-typed tasks. All verbalizations of each mother and each child were coded from the videotapes, and patterns in the flow of conversation between mother and child were examined. A mixed analysis of variance was used to examine effects of the child's sex, LOC, age or birth order on these probabilities. Boys and mothers of boys talked more than girls and mothers of girls. There were no significant differences in verbalization related to LOC, birth order, or age of the child. Sex differences in the overall amount and patterning of verbalization of boys vs. girls are discussed in relation to previous research in the area. (Author)

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SEX DIFFERENCES IN VERBAL INTERACTION PATTERNS OF MOTHERS AND THEIR PRESCHOOL CHILDREN

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This paper informally presents part of a larger program designed to explore possible precursors of sex differences in achievement motivation. The availability of advanced techniques for the collection and analysis of observational data has made possible the fine-grained analysis of on-going patterns of social interaction, and in this research such techniques were used to record and analyze interactions of mothers with their preschool children. The present study involves the verbal interactions of mother/child pairs during task performance.

The exploration of possible sex differences in the amount of verbal activity of the mothers and children in this study are of interest from two different perspectives. The first perspective derives from the relationship between the amount of talking directed at young children and their later development of general competence; the second dimension reflects a long-standing question as to the existance of sex differences in verbal activity among preschool children.

A possible relationship between early verbal patterning and the development of general competence recently has been suggested by research from the Harvard University Preschool Project. Burton L. White (1976), Director of the Project, and a research team have spent the last ten years exploring the origins of human competence. They have examined data correlating a child's pattern of experiences during the first few years of life with the later achievement of general competence. The two aspects of their results which relate to the present discussion are: first, the mother was found to be the most important "environmental factor" in this development; and secondly, a correlate of the achievement of general competence was "The amount of live language directed to the child (not to be confused with television, radio or overheard conversations) . . . The more the child is talked to directly, the better." (p. 5) In a further discussion of the relationships between competence and experience, White and his associates again pinpoint the key role of verbal interactions in the development of the competent child (White, Kaban, Shapiro and Attanucci., in press.) A mother's style of verbal interaction with her child thus seems to be an important aspect of the child's development relevant to the interests of the total research program.

The second dimension reflects the more general question of sex differences in the verbal activity of preschool children. Ten years ago, Maccoby (1966) concluded from her examination of previous research in this area that "Through the preschool years and in the early school years, girls exceed boys in most aspects of verbal performance." (p. 26); However, in a more recent examination of sex differences, Maccoby and Jacklin (1974) note that a number of recent studies have not found such differences during the preschool through early adolescent periods (Templin, 1957; McCarthy & Kirk, 1963). The authors suggest that a reexamination of earlier views concerning the development of sex differences in verbal abilities seems to be in order. (pp. 75-77)

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Commenting upon a number of studies which compared the "Spontaneous Vocalization and Verbal Behavior of Boys and Girls," (p. 76, 1974) Maccoby and Jacklin conclude that "After the age of two, when speech is beginning to be acquired, no trends are apparent in the amount of spontaneous talking that the two sexes do in the course of their daily activities." (p. 77) Results of these studies were inconsistent for 4- and 5-year olds. Two of these studies found that boys talked more than girls (Mueller, 1972; Szal, 1972); another study favored girls (B. Coates & Hartup, 1969); and still other studies reported finding no sex differences (Hartig & Kanfer, 1973; Wolff & Wolff, 1972; Kohlberg, et al, 1968.) The comparison of verbal activity of the boys and girls in the present study provides another piece to this puzzle.

The present study also focusses upon a method for working with observational data. Observational methods of data collection often have depended heavily upon an observer's rather subjective definition of patterns characterizing various behavioral categories--definitions which are especially subject to distortion in studies involving the observation and coding of behavior of boys vs. girls. (Baumrind, 1971.) Sincer greater objectivity in the coding process is obviously desirable, any refinements of data collection and analysis which reduce the effects of rater subjectivity should be employed whenever possible. One way to circumvent the subjectivity involved in coding patterns of behavior is to examine finer aspects of that behavior. Recent technological advances have greatly increased the investigator's ability to gather time-sequence and event-sequence data, thus allowing the examination of these more molecular aspects of behavior. However, Bakeman (1976; Bakeman and Dabbs, 1976) points out that the increasing sophistication of observational techniques in recent years has resulted in the researcher's ability to gather vast amounts of carefully coded data--an ability which, unfortunately, has not been accompanied by commensurate advances in the development of techniques for the analysis of such data.

In an effort to alleviate this imbalance, Bakeman (1976) has developed a technique which uses conditional and transitional probabilities for description and causal inference in studies of interaction patterns. This approach depends upon careful attention to the data structure employed in the process of observational research and analysis, and Bakeman describes several types of sequential, categorical data appropriate for observational research. He provides computer programs for data management and for the computation of the joint frequencies and conditional probabilities necessary for this sort of interaction analysis. This technique has proved to be a valuable tool for examining complex interaction patterns (Stokes, 1976; Bakeman & Dabbs, 1976; Evans & Young, 1975; Brown & Bakeman, 1975) and is particularly well suited for the purposes of the present study. Use of these methods allowed the moment-by-moment observation and coding of the mother/child interactions as the pair engaged in task performance in the laboratory.

A very general descriptive summary of the Method: Subjects and Procedure can be obtained from the abstract which is attached

RESULTS

A. Reliability

The question of reliability in observational research is always an important one, especially in studies in which the data acquisition system relies upon the accuracy of observer input. The use of videotape in the present study facilitated the computation of reliability indices by preserving the data for later coding by an independent observer. Since the reliability of the coding process is a basic assumption of the data analysis in this study, a relatively extensive discussion of the computation of interobserver reliability is presented.

The codings involved in the present study included codings of the onset, duration and offset of the verbalization of each mother and child. Reliability data were obtained by having an independent observer code a videotape of one of the dyads which previously had been coded by the author (E). The two time-frame data strips indicating the onset, duration and offset of verbalizations of the mother and child as coded by each observer were compared, and errors were computed using the most stringent criteria possible, i.e., each .5 second time-frame disagreement was counted as one error. The overall percentage agreement between the two sets of codings was .932; However, since there were only a few coding categories recorded on each time-frame strip (i.e, CTALK, MTALK, BOTHTALK and NOTALK, a correction based on the number of categories (Bennett's "S", 1954) was computed. This computation yielded an interobserver reliability index of S = .898. Finally, because of the over-representation of one of these coding categories (NOTALK occurred during a disproportionately high number of time frames across the 4 sessions), a further computation seemed advisable. Scott (1955) has developed an index of interobserver reliability, π , which corrects for the elevation of chance agreement occurring in such situations. Using this formula on the total number of errors produced a π value of .76. Among the coding errors, however, there were a number of instances in which the two observers agreed upon the duration of a vocalization, but displaced the behavior by .5 second. If the π index is computed excluding this type of error, the π value becomes .87. In no instance were any of the errors greater than .5 second, and the remaining errors represent instances in which the observers disagreed by .5 second on the duration of a vocalization.

B. Verbal interaction patterns

The data examined for these analyses were the simple and transitional probabilities of the 4 mutually exclusive and exhaustive states of verbal interaction: Both Talking, Child Talking, Mother Talking, and Neither Talking, and the transitional probabilities among those states. Repeated measures analysis of variance were used to examine the effects of the various independent variables on each of the simple and transitional probabilities.

1. Sex differences. These results are summarized in Table 1 and are graphically displayed in Figure 1. The simple probabilities, averaged across all mother-son and mother-daughter dyads, indicated that boys talked more than girls ($p<.05$), and that mothers of boys talked more than mothers of girls ($p<.05$), while a silent state (neither mother nor child talking) was more likely for mothers with daughters than for mothers with sons ($p<.01$.)

More detail could be seen by examining the transitional probabilities. When comparing mother-daughter with mother-son dyads, the silent state was more likely to be broken by boys than by girls ($p<.05$) and by mothers of boys than by mothers of girls ($p<.05$). Boys were more likely to maintain verbal activity (i.e., to continue talking once they had begun) than were girls ($p<.01$), and the state of Mother Talking was more likely to move immediately to Child Talking if the child was a boy than if the child was a girl ($p<.01$.)

2. LOC, age and birth order differences. Similar analyses compared Internals and their mothers with Externals and their mothers; 4-year olds and their mothers with 5-year olds and their mothers; and first-born children and their mothers with later-born children and their mothers. None of these comparisons revealed significant differences in the simple probabilities, and the only transitional probability showing a significant difference between any of the groups occurred in the comparison of 4- and 5-year olds and their mothers. For these dyads, the state of Child Talking was more likely to be followed by Mother Talking if the child was 4-years old than if the child was 5-years old.

CONCLUSION

One contribution of this research has been the demonstration of the usefulness of relatively new techniques for observational research. The character of social interaction often plays an essential role in many types of behavior of interest to psychologists, but the interactive nature of behavior is often ignored because of the difficulties involved in collecting and analyzing this sort of data. The mutual influence of behavior among participants in any social interaction is an accepted fact, and the use of research methods which can untangle complex events in a behavior stream can contribute greatly to our understanding of those behaviors.

The data also address the question of sex differences in the verbal actuvity of preschool children. There is a generally accepted cultural stereotype of the talkativeness of women in general, with men more often characterized as being strong and silent. Maccoby and Jacklin (1974) note that the relatively general acceptance among researchers of the idea that little girls are verbally more able and active than little boys dates back to large normative studies of the '40's and '50's. More recent research in this area seems to indicate that such sex differences among preschoolers are neither as pronounced nor even necessarily in the same direction as those found by this early research. Boys in the present sample talked more of the time than did girls and were more likely to break a silence by talking and to continue talking once they had

begun. They also made more total statements than girls (i.e., the differences in total proportion of time spent talking was not simply due to longer sentences.) Thus, one result of this study suggests that, among 4- and 5-year old children, there is more verbal activity during task performance among boys than among girls.

Finally, the overall patterns of differences in mother-child interactions as related to the sex of the child provided a clear pattern of results in the present study, with mothers and their sons engaging in a more active pattern of mutual involvement during task performance. If the highly interactive relationship between boys and their mothers does indeed influence later competence and achievement motivation of the children, then there are several implications for current trends in child-rearing practices. The "advantaged" child, who may spend a great deal of his or her time in a Babee-Tender chair, listening to a recorded version of Grimm's fairy tales, may be less able to deal effectively with the environment than the child who receives more active attention. The cultural contraction of the extended family to a nuclear family may contribute further to this problem by removing the grandparents and other family members who in earlier family patterns were available for--and probably delighted in--reading to and talking with the family's children. Modern parents are thus left with the awesome task of constructively shaping their child's interactive environment, while preserving their own relationship and identities.

REFERENCES

Bakeman, R. Untangling streams of behavior: Sequential analysis of observation data. Unpublished manuscript, Georiga State University, 1976.

Bakeman, R. and Dabbs, J. M., Jr. Social interaction observed: Some approaches to the analysis of behavior streams, Personality & Social Psychology Bulletin, in press.

Baumrind, D. Current patterns of parental authority, Developmental Psychology, 1971, 4(1, Pt.2).

Bennett, E. M., Alpert, R., and Goldstein, A. C. Communication through limited response questioning, Public Opinion Quarterly, 1954, 18, 303-308.

Coates, B. and Hartup, W. W. Age and verbalization in observational learning. Developmental Psychology, 1969, 1, 556-562.

Evans, M. S. and Young, P. T. Dyadic interaction: Markov analysis of changing patterns in sequential data. Paper presented at the 47th annual meeting of the Midwestern Psychological Association, Chicago, 1975.

Hartig, M. and Kanfer, F. N. The role of verbal self-instructions in children's resistance to temptation. Journal of Personality and Social Psychology, 1973, 25, 259-267.

Kohlberg, L., Yaeger, J., and Hjertholm, E. Private speech: Four studies and a review of theories. Child Development, 1968, 39, 691-736.

Maccoby, E. E. (Ed.) The Development of Sex Differences. Stanford: Stanford University Press, 1966.

Maccoby, E. E. and Jacklin, C. N. The Psychology of Sex Differences. Stanford; Stanford University Press, 1974.

McCarthy, J. J. and Kirk, S. A. The Construction, Standardization, and Statistical Characteristics of the Illinois Test of Psycholinguistic Abilities. Urbana: University of Illinois Press, 1963.

Mueller, E. The maintenance of verbal exchanges between young children. Child Development, 1972, 43, 930-938.

Scott, W. A. Reliability of content analysis: The case of nominal scale coding. Public Opinion Quarterly, 1955, 19, 321-325.

Stokes, N. A., III., Sequential analysis of looking and talking during agreement and disagreement. Unpublished Master's Thesis, Georgia State University, 1976.

Szal, J. A. Sex differences in the cooperative and competitive behaviors of nursery school children. Unpublished Master's Thesis, Stanford University, 1972.

Templin, M. C. Certain language skills in children. Institute of Child Welfare Monograph, No. 26. Minnesota: University of Minnesota Press, 1957.

White, B. L. Exploring the origins of human competence, APA Monitor, 1976, Volume 7, p. 4-5.

White, B.L., Kaban, B., Shapiro, B. & Attanucci, J. Competence and experience, in Uzgiris, I. C., & Weizmann, F. (eds.), The Structuring of Experience, Plenum Press, in press.

White, R. W. Motivation reconsidered: The concept of competence. Psychological Review, 1959, Vol. 66, 297-333.

Wolff, P. and Wolff, E. A. Correlational analysis of motor and verbal activity in young children. Child Development, 1972, 43, 1407-1411.

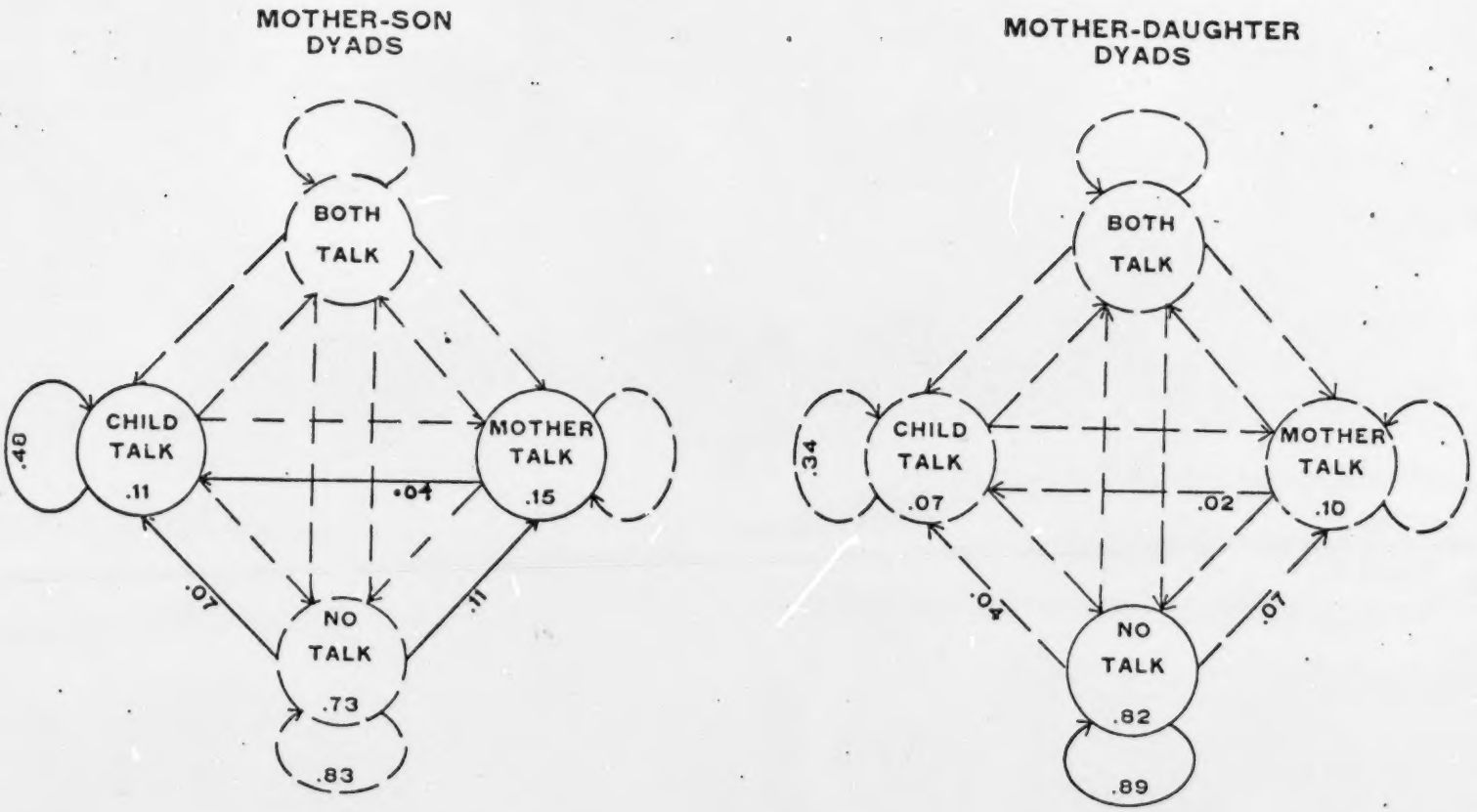

Figure 1. Diagram showing differences between mother-daughter and mother-son dyads. Solid lines indicate probabilities that were significantly higher for one or the other sex.

Table 1.

SUMMARY OF ANALYSES OF VARIANCE:

SIGNIFICANT SEX EFFECTS ON CONDITIONAL AND

TRANSITIONAL PROBABILITIES

SOURCE	df	MS	F
STATE:			
CHILD TALK			
Between Subjects			
Sex (A)	1	.073	4.65*
S(A)	38	.016	
Within Subjects			
Task (T)	3	.003	n.s.
AT	3	.002	n.s.
ST(A)	114	.004	
Contrast within Subjects			
Int/Ext Puzzle (B)	1	.000	n.s.
AB	1	.000	n.s.
SB(A)	38	.002	
Male/Female Task (C)	1	.006	n.s.
AC	1	.000	n.s.
SC(A)	38	.005	
MOTHER TALK			
Between Subjects			
Sex (A)	1	.085	4.37*
S(A)	38	.019	
Within Subjects			
Task (T)	3	.010	4.13*
AT	3	.002	n.s.
ST(A)	114	.002	
Contrasts within Subjects			
Int/Ext puzzle (B)	1	.001	n.s.
AB	1	.000	n.s.
SB(A)	38	.001	n.s.
Male/Female task (C)	1	.013	4.93*
AC	1	.003	n.s.
SC(A)	38	.003	
STATE:			
MOTALK			
Between Subjects			
Sex (A)	1	.525	10.32**
S(A)	38	.052	
Within Subjects			
Task (T)	3	.002	n.s.
AT	3	.003	n.s.
ST(A)	114	.007	
Contrasts within Subjects			
Int/Ext puzzle (B)	1	.006	n.s.
AB	1	.003	n.s.
SB(A)	38	.003	
Ma/Fe Task (B)	1	.001	n.s.
AB	1	.006	
SB(A)	38	.009	
CHILD TALK MAINTENANCE AT LAG 1			
Between Subjects			
Sex (A)	1	.761	10.72**
S(A)	38	.071	
Within Subjects			
Task (T)	3	.056	n.s.
AT	3	.040	n.s.
ST(A)	114	.036	

SOURCE	df	MS	F
Contrasts within Subjects			
Int/Ext puzzle (B)	1	.018	n.s.
AB	1	.014	n.s.
SB(A)	38	.031	
Ma/Fe task (C)	1	.035	n.s.
AC	1	.035	n.s.
SC(A)	38	.040	
STATE:			
CHILD TALK FOLLOWING MTALK AT LAG 1			
Between Subjects			
Sex (A)	1	.024	9.97*
S(A)	38	.002	
Within Subjects			
Task (T)	3	.007	n.s.
AT	3	.004	n.s.
ST(A)	114	.005	
Contrasts within Subjects			
Int/Ext puzzle (B)	1	.000	n.s.
AB	1	.005	n.s.
SB(A)	38	.001	
Ma/Fe task (C)	1	.015	n.s.
AC	1	.003	n.s.
SC(A)	38	.006	
NOTALK TO CTALK AT LAG 1			
Between Subjects			
Sex (A)	1	.023	4.08*
S(A)	38	.006	
Within Subjects			
Task (T)	3	.002	n.s.
AT	3	.001	n.s.
ST(A)	114	.002	
Contrasts within Subjects			
Int/Ext puzzle (B)	1	.000	n.s.
AB	1	.000	n.s.
SB(A)	38	.000	
Ma/Fe task (C)	1	.002	n.s.
AC	1	.000	n.s.
SC(A)	38	.005	
STATE:			
NO TALK TO MTALK AT LAG 1			
Between Subjects			
Sex (A)	1	.054	4.14*
S(A)	38	.013	
Within Subjects			
Task (T)	3	.004	n.s.
AT	3	.002	n.s.
ST(A)	114	.002	
Contrasts within Subjects			
Int/Ext puzzle (B)	1	.000	n.s.
AB	1	.000	n.s.
SB(A)	38	.002	
Ma/Fe task (C)	1	.009	4.15*
AC	1	.002	n.s.
SC(A)	38	.002	